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THE
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☞See advertisement on last page.

Poetry.

SPRING IS BEARING BACK HER ROSES.

Spring is bearing back her roses,
From the golden Indian Land,
And her footprints on the sand,
Peering through the huddled grasses,
Glows the violet fresh and fair;
And the bounding breeze invites me
In its frolic mirth to share.
Stern old winter hence was driven,
Full eight shining weeks ago;
And like the snow-drift in the valleys,
Do the fringed lilies glow,
All above me, o'er the branches,
Runs the friendly budding vine;
Just above me 'mid the mosses,
In a slender golden line,
And a robin perched upon it,
Hails me with a gladsome song,
And the heart's remembered voices,
Back upon my fancy throng,
Just below me in the hollow,
Bursts the blue-birds note of joy;
And her breast is like the morning
On the glorious summer sky,
And my heart hath heard the music
Of the far Ideal Land;
As beneath the curving branches,
On the starry turf I stand.

CORSETS.

When I was down in Boston town,
A month ago or more,
I saw a very sing'lar thing
I never saw before

'Twas hanging in a window case,
Upon a string a-straddle—
Looked something like an hour-glass,
And something like a saddle.

I asked of several citizens,
Who chanc'd to be at hand,
" What was it?" but their gibberish
I could'nt understand.

One fellow called it a " restraint,
On certain parties placed,
Like a decree in chancery,
To stay the tenant's waste!"

Another—just the queerest chap
Of any in the swarm—
Said " twas'nt glass of fashion, but
It was the mould of form."

Another said " twas a machine
A lady used to rig her—
To bring her form and life into
The very smallest figure."

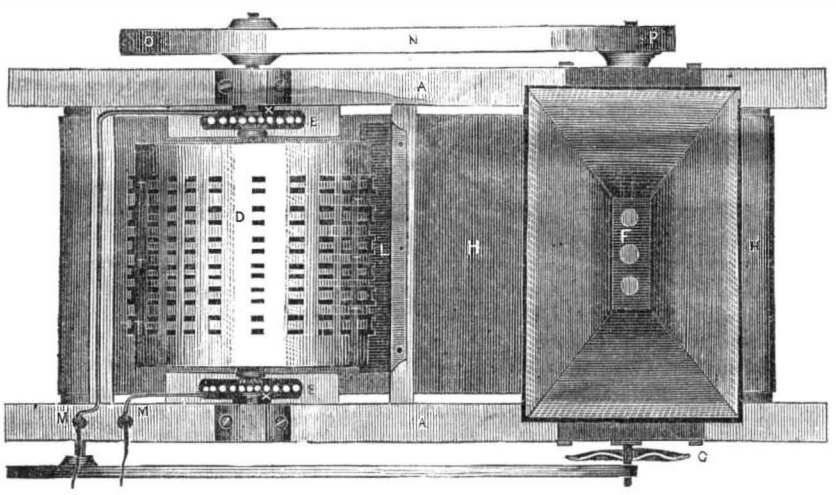
At last a little girl came out,
And—think of my amaze!
She asked me " if I would'nt please
To buy a pair of stays?"

Of course I'd heard of " stays" before,
But, strike me deaf and dumb?
If ever I until that hour,
Suspected " them was um!"

I knew that lunatics must have
Straight jackets put about 'em—
But women in their wits should make
A *shift to do*—without 'em

RANSOM COOK'S

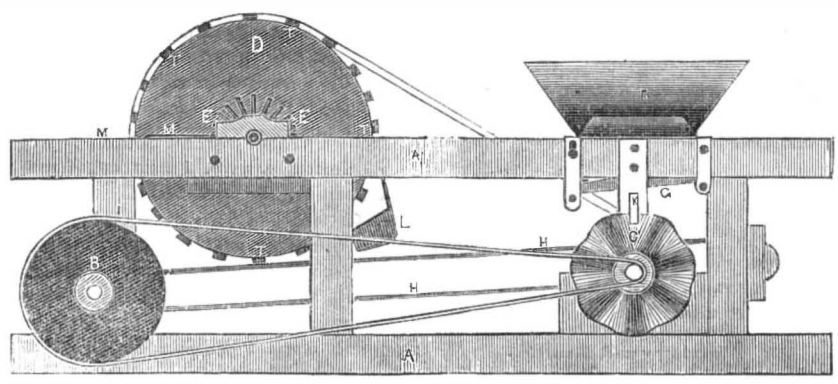
ELECTRO MAGNETIC ORE SEPARATOR.---Figure 1.



This is a machine invented by Ransom Cook, Esq. late Superintendent of the Clinton County State Prison in this State, and employed for the separation of the magnetic ore at the mines in that place. The principle of this invention consists in charging successively by a battery different rows of magnets on a revolving cylinder, so that the magnets will lift magnetic ore from an endless web as it passes under the cylinder; and when the ore is lifted up a short distance the electric connection is broken with the magnets, and the ore then drops from them into a trough and is discharged into a proper receptacle.

Figure 1 is a ground plan of the machine. A A, is the frame. B, is a pulley by which the cam shaft C, is revolved. This shaft by the cam C, shakes the hopper F, so as to spread the ore evenly across the web H. This is done by having a hook rod that catches the upper edge of C, and is made, from the shape of the cam, to traverse across the web and spread the ore equally on the web—a very beautiful arrangement indeed for this purpose. D, is the revolving magnet cylinder driven by band and pulleys O N P. L, is the trough into which the ore is discharged from the cylinder. X X, are mercury troughs, the one charged with the positive and the other with the negative from the battery by the wires M M, the one charging one mercury trough and the other that on the opposite side. The magnets are fixed on the revolving cylinder and wound round with copper wire, the one positive and the other negative. These wires are carried from one magnet to another across the row and brought out at the axle of the cylinder to form a circular fan row of the points of the wires, so that as the cylinder revolves, and these wires dip into the charged mercury troughs, the rows of magnets are charged and broken alternately to lift the ore from the dross, and deposit it in the receiving trough.

Figure 2.



This is a side view of the machine. As the same letters indicate like parts on all the figures, we will only refer to those particularly necessary. K, is the hook shaft or bar that is made to shake the hopper F, as already described. H, is the endless web or apron carrying the ore forward to the magnets on the cylinder D. The magnetic cylinder revolves to meet the ore as it comes forward on the web, not in a contrary direction, as might be inferred. T T, are the magnets. M, represents the wires from the battery. The large cylinder is revolved by a broad band from the other side passing over a large pulley on the shaft of D, the magnet cylinder. E, represents the copper wires that are wound around the magnets and shews the manner in which they are formed on the outside of the axle, to dip into the charged mercury troughs and be discharged, and as they rise out of the troughs, the electric current is broken and the magnets discharged. This is a particular part of the invention. As the cylinder is made of wood, it is non-conducting, and to keep the wires from the axle of the cylinder, it (the axle) is boxed up with wood and the wires turned up on the outside of it.

(*For Fig.* 3, *see page* 308.)

Thirteen children came near being poisoned to death in Cincinnatti, Ohio, recently by a woman who gave them essence of hemlock, which she mistook for liquorice.

It has been found that kiln drying does not destroy the germinating qualities of grain.

Recent experiments prove that if fish get beyond a certain depth in the sea they die from the pressure of the water, beyond a certain amount of which they cannot support.

Animals in their wild state never have the consumption—it is the child of civilization.

RAIL ROAD NEWS.

Cheshire Railroad.

Col. Alvah Crocker, of Fitchburg, President of the Vermont and Massachusetts railroad, was one of the early projectors of the Fitchburg Railroad. In Boston he made great exertions, but it was with extreme difficulty that he succeeded in raising $90,000. He then visited some of the towns now on the line of the Cheshire railroad, and spent three months travelling from farm house to farm house, urging the people to take stock in the Fitchburg Railroad. After talking two or three hours, he would occasionally prevail on a farmer to take one share. Many of the subscribers to the stock regarded their act more in the light of a charitable donation than anything else.

The Cheshire Railroad extends from the Vermont and Massachusetts Railroad at Ashburnham, to the Connecticut river at Bellows Falls, where it connects with the Rutland Railroad, and also with the Sullivan Railroad, which will connect with the Vermont Central Railroad. The Cheshire Railroad, fifty miles in length, when completed will cost about $3,000,000. It has been substantially constructed, and may be regarded as one of the most stupendous railroad projects in this country. The difficulties which have been overcome by the cutting down of trees and the filling up of valleys, cannot be described.

Connexion of the Providence and Stonington Railroads.

A large party of gentlemen from Boston and other quarters were invited on Monday week to be present at the ceremony of opening the new branch railroad which forms a junction between the Boston and Providence and Stonington Rail Roads, by passing through the city of Stonington, and furnishes a convenient station in a central part of that city.

Northern Railroad.

The fare on the northern railroad, is reduced to $3.25 from West Lebanon (on the river) to Boston, and $1.75 to Concord.

Anthracite Ashes.

Anthracite Coal Ashes, we understand, were applied on some land in New Jersey, last spring, at the rate of fifty bushels per acre, and notwithstanding the very unprecedented drought, they were the means of doubling the crop of grass. As there are more or less hard cinders in these ashes, after spreading them on grass lands, it would be as well to pass a roller over the meadow, in order to sink the cinders in the ground, out of the way of the edge of the scythe. Anthracite ashes can be had in the city for the mere cost of gathering, and in some instances the carts will deliver them on the docks gratis.—We hope to see them no longer wasted in the streets.

It would be easy to sift them and keep out all the large pieces

Mr. Palmer, late of Indiana, who has explored the country north of the Columbia river, says that Vancouver's Island is as large as Great Britain, and contains all the natural resources to make it the seat of empire of a great nation.

There are twenty flouring mills in Rochester, with an aggregate of 103 stones. It is calculated that these mills consume 3,000,000 bushels of wheat per annum, and turn out 600,000 barrels of flour.

A blight called the Cochineal blight, has attacked some of the very finest pine apple plantations in the Bahamas, and is very likely to injure the greater part of the crop of fruit.

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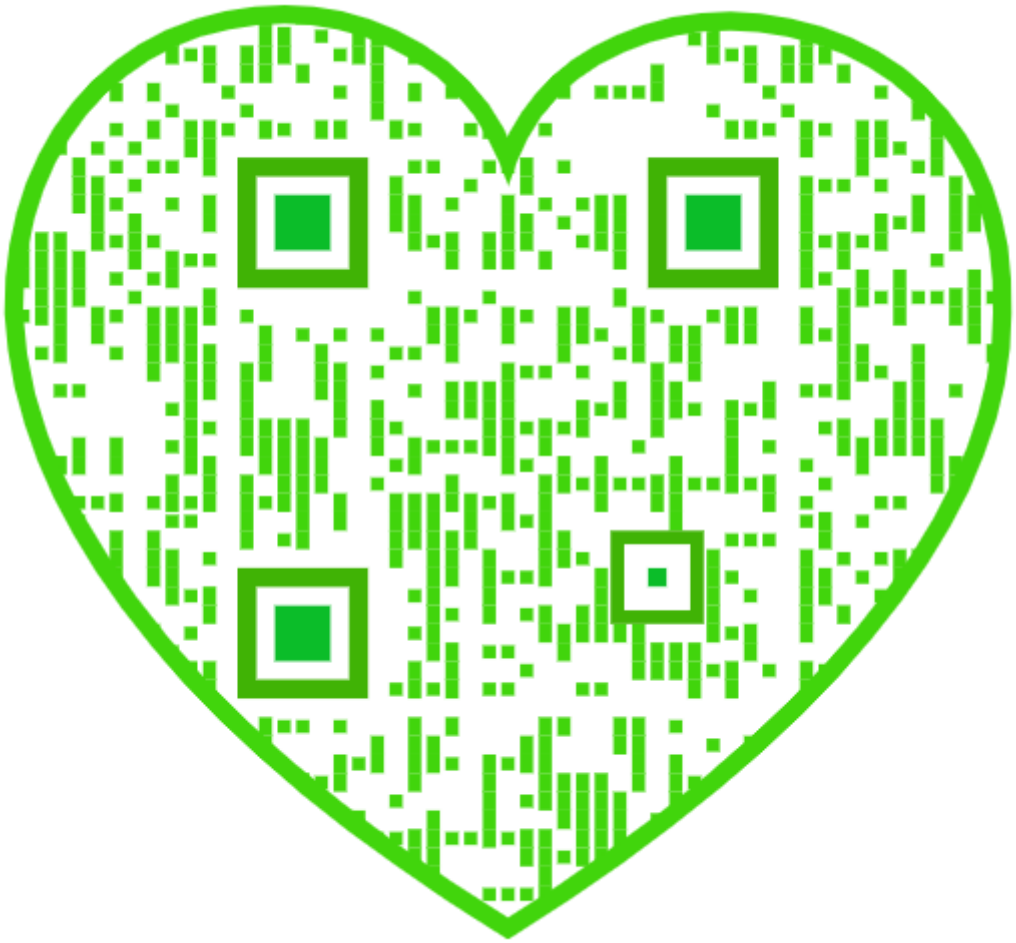

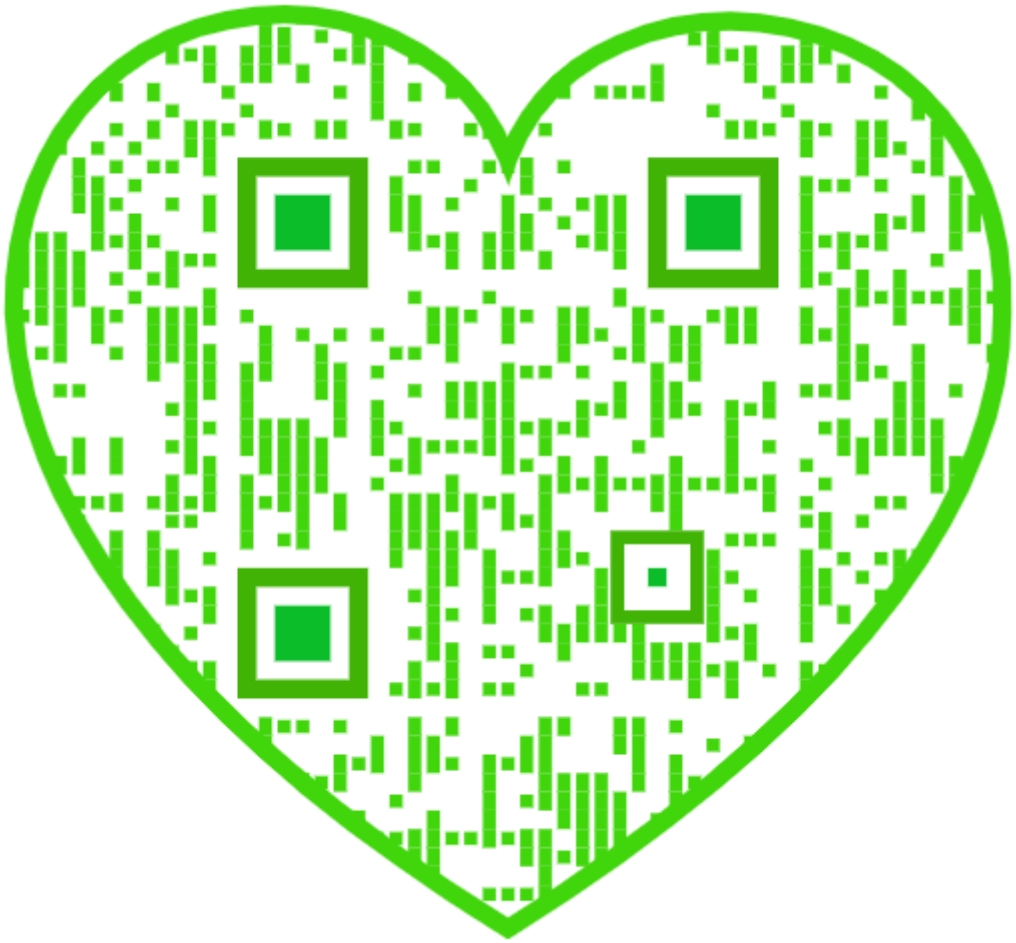

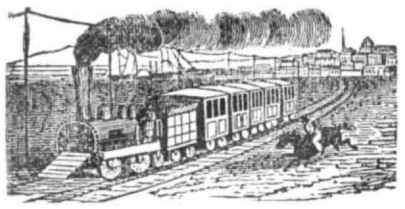

Late News from Europe.

The America, the new steamer of the Cunard line, arrived at Boston on Tuesday evening last from Liverpool, making the passage in 10 days and 8 hours. She made the passage to Halifax in 8 days and 20 hours and to Boston in 10 days, having been detained 8 hours in the fog. This is the quickest passage that ever has been made to America.

By every steamer that has arrived for the last five weeks from Europe, we have expected to hear of war having commenced in Ireland, and the Austrians driven out of Italy Neither of these things have yet happened The British minister, Bulwer, the novelist, has been dismissed from the Spanish court. Russia is growling like a Spitzbergen bear, and France is crowing fierce against Austria, while Uncle John Bull is showing his teeth, all have got up the snapping turtle spirit, thinking to get up a little of the honors of Palo Alto and Cerro Gordo, on the other side of the water, but if they be wise they will cling close to their chimney cheeks.

John Mitchell, the Protestant Irish Repealer, has been found guilty of sedition, by a packed Jury, and sentenced to transportation for 14 years. The sentence was carried into immediate execution, and he is now on his way to Bermuda, to be placed in one of the convict hulks there.

Oil from Tar and Pitch.

According to the present mode of distilling tar, it is placed in a still and heat applied to distill off the oil until about 35 or 40 per cent of the tar is passed over, when the residue in the still is obtained as pitch. But if tar is submitted to a higher degree of temperature in distilling than is now employed more oil is obtained, and the residue is coke or a fuel similar to coal obtained in the still. From pitch oil also was obtained by a new invention of Mr. Clift, an English gentleman. To do this, he employs iron cylinders seven feet long and two feet in diameter, with a door at each end and set horizontally with furnaces in the usual manner. The tar is placed in the cylinders and the heat gradually raised. The vapors pass off through a pipe fixed in the top of a cylinder into a condenser where they are condensed into oil. After this first *common* heat applied to the tar, the heat is raised much higher and the residue in the cylinder is converted into coke, or if the latter process is stopped at a certain point, a portion of the undecomposed bitumen will remain with the coke, and the residue will have nearly the same properties of coal, (something interesting to Geologists.) Common gas retorts answer all the purposes set forth in the discovery. Sometimes a little saw dust is mixed with the pitch and the tar. From both pitch and tar, or a mixture of both, the invention relates to the extracting of a greater quantity of oil by applying a greater degree of heat to these substances. This discovery may lead to others in the same field. To our friends in North Carolina, it will be somewhat interesting. A patent has been granted in England for the discovery.

The Last Machine.

We have received a letter from "C. of Gardiner, Me." in answer to the letter of W. M. Davis, of Portland, Me. Mr. C. says that he indulged in no remarks against Mr. Davis, and only spoke of the invention of Mr Webber. He states that he has seen Mr. Webber's machine and considers it to be good. We would publish the letter, but the controversy has become personal and would be of no interest to our readers. Mr. C. disclaims the least borrowing from Mr. Davis on the part of Mr. Webber.

Too True.

Somebody, who writes more truthfully than poetically, says; an angel without money, is not so much thought of now-a-days, as a devil with a bag full.

Wire Fences.

We are glad to see some attention paid to wire fences. We are positive they will yet supersede all others. The wire used for this purpose is No. 11, and it is prepared by boiling the wire in linseed oil heated as hot as it will bear, for halt an bour. The wire is then taken off and hung in the sum until it is dried. This process is repeated three times. The object is to make the wire tough and render it impervious to rust.

Put up good solid posts, six rods apart. The first wire will be one foot and a half from the ground; the second six inches from that, the third 8 inches, the fourth 12 inches and the fifth 16 inches—making the fence five feet high. Fasten them to the posts either by driving in strong spikes, and making one turn of the wire round it, or by driving in a short stout staple; when completed, with a heavy plough turn some three or four furrows on each side towards the fence; but when that cannot be done well put the first wire some four inches lower. If properly put up, the wire will not sag, but to give it a better finish, take some sound poles and drive them into the ground one rod apart, and saw into them perhaps an inch opposite each wire—laying the wire into it, and drive a shingle nail to keep the wire to its place.

It is calculated that 26 cents will pay for one rod of wire fence, and it can easy be made to stop hogs from going through. If plants of the beach tree be planted along the inside, in a few years one of the finest hedges will spring up, if it is kept constantly pruned.

Telegraph Race.

A remarkable telegraph race occurred in this city last week, when the Whig National Convention was in session in Philadelphia. The Jersey City wires were monopolized by the Whig Press, and our other papers had to bite their thumbs for news. But science was not to be baffled for news by a monopoly, so they despatched a message via Albany and away round by Buffalo, Cleaveland, Cincinnati and Pittsburg, to Philadelphia. In fifteen minutes, over the same route, an answer was returned announcing the result of the second balloting for candidates for the Presidency. It is just as easy to stop the lightning as the enterprise of some of our papers.

Principles of Zoology.

A work from the pen of the celebrated Professor Agassis, touching the structure, developements, distribution, and natural arrangements of the races of animals, living and extinct, has just been published, and is for sale by L. Colby, & Co., 122 Nassau street, this city. The work is one designed for the use of Schools and Colleges, and we have no doubt but what it will be gradually introduced as a text book.

American Journal of Agriculture and Science.

The June number of this valuable Agricultural Journal, published and conducted by N. Bement, Albany, N. Y is full of exceedingly useful and interesting matter. It is an excellent magazine for all those engaged in agricultural pursuits.

Marriage and Health.

In comparing the ages of the married and single, the ages of the single were computed from the age of twenty-two years; that of the married, from the age of sixteen in the female, and seventeen in the male, the lowest age at which any married person died. The calculations give as the

Mean age at death of the married 57, 54 years
" " " Single 42, 18 years

showing a difference in favor of the married to the extent of about fifteen years.

The difference was still greater between the mean ages of the married and single males—being for the married males 56, 69 years, and for the single males, only 38, 22 years.

American Institute.

The managers of the American Institute for the next annual Fair to be held in October, have resolved to award apprentices five hundred dollars as premiums for their handy works. This is a move in the right direction and must meet the favorable views of all.

A Deadly Instrument.

A Mr. Sharp, of Natchez, Miss. has invented what is called, a "breech-loading, and self-capping rifle." It is capable of carrying fifty caps at once in a side-tube, which are pressed down by the action of a spring, and presented to the percussion hammer one after another as the discharge is made, without any other power than the throwing out of a crooked lever which plays over, and when pressed up covers the guard.

The action of this lever is very simple.—To throw it out from the guard to a position perpendicular to the barrel, causes the steel breech piece of the barrel to sink down so that the eye can run through the entire hollow of the gun, at the same time throwing under the hammer over the priming nipple, a cap. The cartridge is now pushed in by the fingers at the breech, the lever instantly drawn up close over the guard, by which the breech piece rises up, securely closing the barrel and clipping the end of the cartridge, and the moving priming nipple rises also in position, bringing up the cap on its top. It is now cocked and fired—when instantly throwing out the lever, the exploded cap falls out, another one moves down and the breech piece sinks in readiness to receive the cartridge.

The fifty caps will keep up a deadly stream of fire for five minutes, when a pause of from one to two minutes will be required to place fifty new caps in the exhausted tube, when fifty more discharges may take place, giving the weapon a terrible capacity.

First Female Member of the A. A. A. S.

Miss Maria Mitchell, of Nantucket, discoverer of the Comet which bears her name, was unanimously elected an honorary member of the American Academy of Arts and Sciences, at their last general meeting. We believe that this is the first time such an honor has been conferred on any lady in this country; and a similar honor had been conferred on but two ladies in Europe, Miss Caroline Herschell, the sister and assistant of the late Sir William Herschell, in his astronomical labors, and Mrs Somerville, the commentator on La Place, were some years ago elected honorary members of the Astronomical Society of London.

Distribution of the Loaves and Fishes.

In the House of Representatives on the 5th inst. Mr. Johnson, of Tennessee, said that in the last Congress there were only twenty working men—persons not lawyers; and that the latter class had a greater amount of influence than any other. He desired that farmers and working men should receive their full share of the public offices; and, in order to accomplish the object, he moved that the offices be apportioned among the several States, according to the ratio of representation.

Gutta Percha Boats.

At Seacombe, a No. 1 pilot boat, built of gutta percha, has been tested. It is seventeen feet and a half long, and though nearly filled with water, and having four men on its gunwale, kept its buoyancy. It weighs one hundred and ninety pounds, and sustains a pressure of fifteen hundred. It not only answers the purpose of a pilot boat, but is also convertible into a life boat.

This substance must make an excellent life boat, and before we saw the above account taken from one of our exchanges, we had thought of calling attention to the feasibility of this application. The toughness, elasticity, and lightness of this material, for the purpose of boat building, is unquestionable. The price is one dollar per pound, and 30 pounds must make a boat of a moderate size. The old gutta percha can be sold at a reduced price.

Patent Office Report.

In the U. S. Senate on the 5th inst. a resolution was offered by Mr. Badger, ordering the printing of 20,000 extra copies of the Patent Office Report for the use of the Senate. The Report of the Examiners was published last year by the 1st of March.

Stave Dressing Machine.

Our readers are requested to read the advertisement in another column which pertains to stave dressing.

A new kind of silk worm has been discovered near Guiehen Bay, in Van Dieman's Land, and is said to be much superior to the Chinese silk worms, as a greater number of layers are given to the cocoon; and space is left in the form of a crescent, through which the insect, when fit for flight, emerges without injuring the silk.

The British government intends to encourage the emigration of military pensioners to British North America, in order to colonize the land bordering on the United States, and a detachment of 45 pensioners, accompanied by their wives and children, have sailed from the Thames for Quebec to commence colonizing.

Last week, the steamboat Lawrence, a new flat bottomed boat, drawing only fifteen inches of water, and built expressly for the navigation of the Merrimack river, arrived at the new city of Lawrence on that river, with about fifty passengers. This is the first steamboat that ever arrived at that place.

In relation to the subject of erecting a monument to De Witt Clinton, at Albany, N. Y. the Evening Journal says, the whole matter appears to be in a proper train for efficient prosecution and very satisfactory consummation. When are the Albany folks going to raise the Mills Monument at the Capitol Park?

Very productive mines of quicksilver are said to have been discovered in Upper California. We would attach more credit to the story if it did not come so opportunely to satisfy those who might otherwise grumble at the treaty.

An editor away out in the Great West, wishing to give a faint idea of a contemporary's meanness, says that his soul is so small, that it might dance a horn pipe in a musquito's watch fob!

Mehemet Ali has bequeathed his beard to Lady Stanhope. The lady wished a lock of his hair, but being bald-headed, the beard suggested itself to his mind as a good substitute.

The Belgian Government has offered a premium of ten per cent upon all the cotton manufactures sold out of Belgium. This is to encourage foreign exportation. The rest of the inhabitants must pay the tax.

Two fishermen lately caught at Milwaukee in their nets some 10 miles from the shore, the largest trout ever seen in those parts. It measured 3 feet 11 inches in length, and 45 inches in girth, and weighed fifty-five pounds.

Ten years ago, the trade between New York and Texas, was confined to a single schooner, now there is a line of ships constantly employed.

The Copper ore taken from Judge Gamble's mine in Missouri, yields it is said 40 per cent of pure copper. $68,000 worth has already been extracted,

The sales of articles and Patent Rights, at the Mechanics Fair, held at Baltimore is reported to have amounted to about 15,000 dollars.

The journeymen brickmakers are on a strike against the new process of making six bricks at a time. There is no use for them to contend against fate.

The rates upon the telegraph, between Wheeling and Baltimore, have been reduced to 45 cents for ten words, and 3 cents a word for all over ten

New York is the largest and dirtiest city in the Union. The streets present fine beds for planting potatoes after a shower.

A resolution has been adopted in the House of Representatives to remove the lantern and pole from the dome of the Capitol.

The overseers of the poor in Bangor, Me., are getting together a library for the use of the inmates of the almshouse of that city.

General Taylor, and General Cass are candidates for the Presidency of the United States. The planet Mars is in the ascendant.

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Fancy Weaving.

(*Concluded from our last.*)

Gauze, veining, purles, spidering, &c., are also variously combined with several of the other branches of fancy weaving, and produce some of the most beautiful and delicate patterns in the *silk and cotton* manufactures. To obtain a knowledge of gauze, veining, spidering, &c., the reader must consult another article.

It must be observed, however, that when gauze and plain are woven in alternate stripes those parts of the reed which are occupied by the plains will be full; but in the gauze spaces a dentful of the warp passes through every second interval only; consequently, the set of reed in the former, will, in general, be double of that in the latter. And hence, when additional weft is thrown in, the plain texture will make a pretty bold contrast to the light transparent fabric of the gauze.

As the warp of gauze, when converted into plain texture, produces a very thin or flimsy fabric, it is necessary to introduce additional warp as well as weft into those parts which are woven plain, which, one being flushed above, and the other below, the gauze spaces, are afterwards cut away. A dentful of this additional warp is taken into the reed alternately, with a dentful of the gauze; so that the former, as noticed above, is exactly double the set of the other.

This method of forming patterns with gauze and cambric, like some of the other branches of fancy weaving, may be extended to all the varieties of a diaper mounting for any draught of the latter may be adapted to the former, merely by substituting one set of gauze, and one of plain leaves, for each set of the tweel, and varying the succession of the draught and treading accordingly.

It is not customary for the manufacturer to annex the plans of cording to these compound draughts; neither is it always necessary; particularly in extensive business, to represent in the draught every leaf which is requisite in the mounting. All that is commonly required in the draught is, to point out to the headle-maker, the quantity and arrangement of each kind of the warp in one set of the pattern, with the number of times the pattern is to be repeated; and to the weaver, the order of succession in which these several warps are to be drawn into their respective mountings; each being supposed to understand his own department of the business.

The first loom to which we shall turn our attention in this Section, is the invention of Mr. Charles Fletcher, an ingenious mechanic of Stroud county, Gloucester, and for which he obtained a patent in March, 1828. This loom being of vertical construction, and although it is not, in some respects, calculated for weaving fancy textures, we think it may, without impropriety, be explained here.

The invention consists, firstly, in a peculiar arrangement or disposition of mechanism, for the purpose of weaving woolen goods: and secondly, in the introduction of certain new parts or pieces of mechanism into looms in general, by means of which considerable advantage, as to speed and uniformity of work, is obtained, especially as regards the weaving of woolen cloths.

By these improvements, Mr. Fletcher assures us that he is enabled to weave better cloth by power, than has hitherto been accomplished by hand, the cloth being much firmer, and the mechanism affording the capability of making more "picks" per minute, and causing less breaking of the warp threads thereby producing a fabric of better quality, and in greater quantity in a given time.

In this loom the yarn beam is situated at the bottom of the framing, and the cloth roller is placed at the top. The warp threads proceed through the headles in vertical positions, while the headles are moved to and fro horizontally. The lay is made to rise and fall vertically, by the action of suitable cams and levers, and is impelled upwards by the momentum of a falling weight, or weights, which can be so regulated and adjusted as to increase or diminish the blow, as may, under circumstances, be found desirable. This part of the mechanism is also furnished with suitable elastic regulating stops for the rising lay to strike against at the moment that the reed is beating up the weft, and by the elasticity of these regulating stops, the sudden concussion of the lay, and consequent strain upon the warp threads, is immediately relieved whilst the blow being caused by a descending weight, mounted upon the end of a lever attached to the cam shaft any degree of impulse can be given to the lay without causing an undue strain upon the warp threads, and with much greater effect upon the cloth than can be obtained by the best hand weaving.—GILROY.

For the Scientific American.

Argument for and against the use of the Lickerin upon Cotton Cards.

The article under the above caption which appeared in No. 36 of the Scientific American, contained in my judgment some sound practical views upon the principle of carding cotton.

The utility of the lickerin upon breaker cards cannot be disputed when its speed in relation to the main cylinder is correctly adjusted. Here manufacturers have generally been working in the dark.

There is no branch of the cotton manufacture where more scope is afforded for the display of practical skill, than in the adjustment of the relative speed of the machinery. It therefore gives me pleasure to learn from your correspondent E. B. M., that the Manchester manufacturers are on the right track in this matter.

E. B. M. requests me to state whether lickerins are used for *single carding* in England and Scotland. I can say they are. A friend of mine visited nearly all the principal manufacturing establishments in both countries a few years ago, and found them *invariably used for single carding*

Most of the mills he visited, did not use them on either breakers or finishers for *double carding*. The cards generally used in England were the same as those described by Dr. Ure in his work on the Cotton Manufacture The cards working without the lickerin were only from 18 to 24 inches wide, with feed rollers one inch in diameter, hence the "bite" of the latter would not be more than 5-8 of an inch from the card teeth.

When cards from 30 to 36 inches wide are used the feed rollers must (in order to prevent them from springing in the middle) be 1 1-4 or 1 3-8 inches diameter. This throws the the bite 6-8 or 7-8 from the teeth—a distance too great to ensure perfect work from cotton no longer in the staple than is generally used for spinning any Nos. below 60's. The cotton should be held by the feed roller when the card teeth first act upon it, so that it may be disentangled *gradually in single filaments.* This cannot be perfectly accomplished when the distance from the bite to the card teeth is greater than the average length of the staple. This is an imperfection in wide cards which is remedied *in part* by the intervention of the lickerin between the feed rollers and main cylinder. The surface velocity of the latter being so great and the teeth so sharp and close set, when no lickerin is used the cotton is tugged away from the roller in large tufts, which choke up the working parts of the card, bruise the teeth and make a very imperfect "clouded" fleece when delivered from the doffer. The lickerin having a slower motion and coarser teeth, detaches the fibres with less violenceand more uniformity—a fact which has probably developed itself in the personal experience of every one who has had occasion to use coarse and fine hair combs.

Your correspondent is correct regarding the proportion of the speed between the main cylinder and lickerin. The rule with English carders is to regulate it so that the lickerin shall be to the main cylinder as 2 is to 3. I find a good proportion to be as 1 is to 2. Anything between these extremes will be a safe adjustmeut in the relative speed of these cylinders. A great advantage of the lickerin results from its striking the cotton with a downward beat, and thereby detaching much of the sand and foul matter which the most perfect picking always leaves amongst the cotton.

I am not *fully* prepared to say with E. B. M. that it would be an object as a matter of actual economy to use lickerins for finishers on double carding. When finishers are used at all it ought to be for the purpose of polishing, not rough-hewing the work. If there be much dirt and "topsy-turvy" left when the stuff passes through the breakers, it is more difficult to make perfect work from it than if left in its original state. Many manufacturers entertain the idea, that the cotton may be hurried much faster through the breaker when there are finishers to complete what the former have *partly* done, but this is a most fallacious idea. And I would advise every manufacturer spinning Nos. below 60's or 50's, to use single cards with a lickerin properly adjusted, and it any are willing to incur the extra expense of breaking and finishing, let the breaker cards be kept in the best order, without any reference to what *touches* the finishers may put on.

I am glad E. B. M. has published his views on the use of the lickerin; and I hope to see the time when cotton manufactures will adopt means for establishing a more free interchange of opinion upon the principles of this beautiful art. WM. MONTGOMERY.

Craigville, Orange Co. N. Y. June 3.

Peat and Peat Mosses.

(*Concluded from our last.*)

There is a peat moss about seven miles in circumference, on the western confines of England and Scotland, called the Solway Moss, whose surface presents a dry crust and fair appearance, being covered with grass and rushes; but it shakes with the least pressure, the bottom being in a semifluid state. Gilpin, in his Observations, says, "At the battle of Solway, in the time of Henry VII. (1542,) when the Scotch army, commanded by Oliver Sinclair, was routed, an unfortunate troop of horse, driven by their fears, plunged into this morass, which instantly closed over them.—The tale was traditional, but now is authenticated; a man and horse in complete armor, having been found by peat diggers, in the place where it was always supposed the affair had happened. The skeleton of each was well preserved, and the different parts of the armor well preserved."

There are a great numher of peat mosses in America, and particularly in Northern Canada and Newfoundland. They are remarkable for preserving animal substances and also trees.

In June 1747, the body of a woman was found six feet deep, in peat, in Lincolnshire It is said that her nails, hair and skin showed scarcely a mark of decay; yet the "antique sandals on her feet afforded evidence of her having been buried there for many ages." In Ireland, a human body was disinterred a foot deep in gravel, covered with eleven feet of peat moss. The body was perfectly preserved, and clothed with garments of hair.—History informs us, that before the use of wool in that country, the clothing was made of hair so that we must infer that this body was buried at that early period. It is quite common to dig up black walnut logs in the Irish mosses or bogs, in a perfect state of preservation. These must have been buried there at an early period and at a time when the climate was much warmer than at present, for walnuts are not now considered natives of that country.

Peat mosses have some remarkable antiseptic powers The reason of this is not yet clearly known, but the fact is. It is thought by some that it is due to the carbon, present in the lowest part of many peat beds, and that the gums and resins also assist in the same way. From the same cause, it is known that the stagnant water of peat grounds does not become putrid; and that peat marshes are less unhealthy than marshes that do not contain peat.

The greatest use of peat, is for fuel. In Norway, Ireland and Scotland, it is extensively used for this purpose, and makes when perfectly dry, a beautiful fire. The charcoal made from peat is superior for making iron to that of wood. When it is intended for fuel it is cut and taken from its bed by instruments prepared for the purpose. Sometimes a long narrow spade, from one side of which near the bottom a sharp knife projects, is employed. The peat is thus cut in two directions at once, and is taken out in solid masses, and often moulded into the form of large bricks. In all cases, however, it is of the utmost importance to render the peat perfectly dry; which is done by piling it up in long rows, somewhat after the manner of piling the bricks in the brickyard, and letting it be exposed to the sun and air. In wet seasons, when the weather is too damp for the peat to get perfectly dried, it is the frequent cause of much suffering in the winter both among the Irish and Scotch peasantry. Peat in burning gives out a singular odor, which is very disagreeable to some, but which banishes that pest to mankind from houses, the bedbug.

All the varieties of peat, or peaty soils, may be converted into valuable manure for uplands by treating it in one of the following ways:—

1st. For a cord of fresh peat mix 92 pounds of potash, or 61 pounds of soda ash, or 16 bushels of common ashes. 2d. Form composts of peat and animal matter, as the bodies of dead animals, fish, &c. 3d. Mix three cords of peat with one of green barnyard manure.

In each of these composts the prepared manure is equal to the same amount of good barn yard manure.

This is an interesting piece of information to many farmers who have pieces of swampy soils that are now useless, but can be easily made highly beneficial.

Science and Art.

Art is the application of science to useful purposes. Science is the head to conceive, art the arm to execute. They are together in emblems, as sisters, Science is the elder, and it is her province to lead art, the younger. Science assumes that she is less liable to stumble, and claims that art should follow. But it must be confessed, that the great romp often gets ahead, and frequently finds shorter and more eligible routes in which her elder sister is glad to travel. Yet they love each other, and their path is the same, and their journey is ever onward. Around them the forest falls, and the rays of the sun come in upon the bosom of the earth. Cottages spring up, and flowers blossom. The neighboring woods echo to the ring of the anvil and the noise of the saw mill for the wild wood stream is dammed, and throbs like a great artery with a flutter-wheel for a heart. Together, they have done wonders. They have timed the arrows of light, and have split the sunbeam into rainbows. They have marked out paths on the restless ocean, and measured its tide. They have stolen from the moon the secret of its motion, and betrayed the mystery of her eclipses. It is thought they had hung a pendulum to the clock-work of the universe, and registered its motions upon a dial.

Wooden Bridges.

The most celebrated wooden bridge at one time, we believe—was that over the Rhine, at Schaffhausen. This was 364 feet in length and only 18 feet broad. The plan of the architect, was, that the bridge should consist of a single arch. The Magistrates of the place, however, required that he should make it of two, and use the middle pier of a stone bridge, which had previously stood there. He did so, but ingeniously contrived to leave it doubtful, whether the bridge was at all supported by the middle pier. It was destroyed by the French in 1799. Aaron Burr erected a wooden bridge over the Delaware in 1804, it was the segment of a circle, 345 feet in diameter. Its chord measures 200 feet. The span of the wooden bridge over the Schuylkill, at Philadelphia, is 340 feet. The bridge built by Palmer, over the Piscataqua, near Portsmouth, N. H. in 1794 is the segment of a circle six hundred feet in diameter. It is put together with wooden keys.

Rural Architecture.

The rage for Gothic structures appears to be a perfect mania in some parts of the country. It would be well if fashion and taste always went hand in hand, but this not always the case. Gothic cottages look best on the banks of rivers shaded with trees, or in the seclusion of "some lone mossy dingle." The wild and solemn for the gothic, the bright and gay for the style of Greece.

James Sheridan Knowles, the dramatist, has received the appointment of Keeper of Shakspeare's house, in Stratford-on-Avon, at a salary of £250 per annum.

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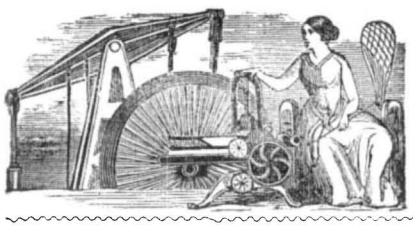


New Inventions.

Improved Cheese Press.

Mr. Ira Carter, of Plattsburg, Clinton County, N. Y. has invented a beautitul and excellent Cheese Press, which is very different in its construction from any in common use. By pinions working in two rack levers, the table on which the cheese is placed, is raised and brought into contact with the head of the rack levers, and the whole weight of the cheese table and its appendages act upon the rack levers as a pressing power. Owing to this peculiarity of its construction, it occupies but a very small space, as the rack levers are upright, and joined by a cross head. It can do more work than presses which occupy three times the space which it does. They can be built very cheap as the whole of the works can be made of cast iron, and thus be made very durable. Measures have been taken to secure a patent.

Improved Water Wheel.

Mr. Truman Hart, of Perrysville, St. Lawrence Co. N. Y , has made a new application of the tub wheel which is superior to any that we have ever seen, and in some situations it would be the best to use. The water is applied to the buckets by spouts from below the surface (there being a face plate on the wheel,) and therefore the friction upon the vertical shaft is but little, while the water is discharged very rapidly from the buckets, thus doing away what is technically termed, dead weight. The wheel can be built at little expense and made strong and durable.

Improvement in Pianos.

Mr. J. Ruck. Piano Forte manufacturer, of this city, has made some valuable improvements in deepening and strengthening the tone of pianos. Some new instruments which have been fitted up by him, have a fullness and richness of tone unequalled. Measures have been taken to secure a patent, which relates to a new mode of constructing the sounding board and bridge.

Reid's Lightning Exhauster.

It is well known that during thunderstorms the telegraph is frequently inoperative and often destroyed by the lightning. To remedy this great evil Mr. J. D. Reid, of Philadelphia, of the Western Telegraph office, has invented what is called a Lightning Exhauster, that carries off the lightning so that the magnets are never affected during a thunder storm. This is a truly valuable invention. Another remedy would be the laying the wires in Gutta Percha tubes under ground. Frost, water or lightning could not affect the wires then, and there would be no danger of the posts and wires being blown down, as frequently happens by the present mode of conducting the wires on elevated posts. The tubes would not need to be sunk very deep. They would not be very expensive and they are exceedingly strong.

Galvanic Spectacles.

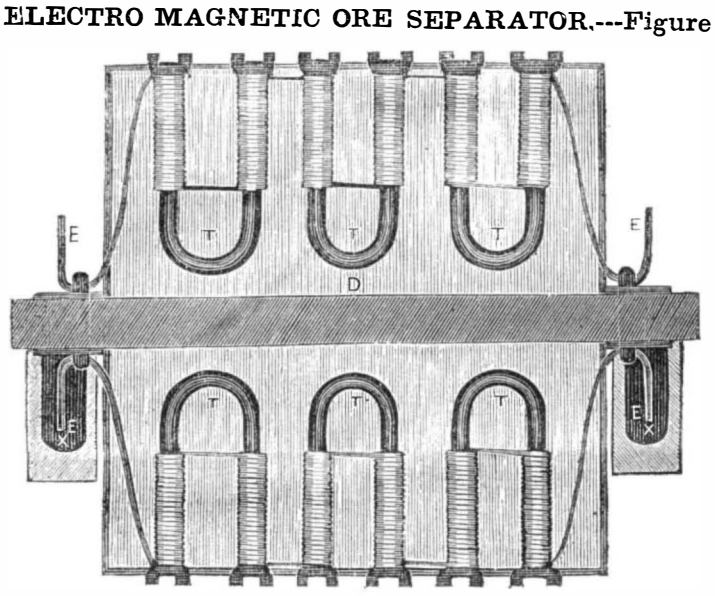
The Medical Journal says that Mr. J. S. Paine, optician, of Worcester, Mass., has invented something new in the way of spectacles. He has constructed that part of the bows holding the glasses, and the bridge, of two metals, viz. silver and zinc—and he is confident of having thus achieved an important improvement by an uninterrupted flow of electricity, which he believes invigorates the eyes, and actually relieves them from a world of small physical annoyances independently of wasting vision. By touching the tip of the tongue on the nose piece, an unmistakeable sensation is produced, and a flash of light is instantly perceptible. Mr. Paine thinks that he feels a cool current constantly passing by the orbits, while the glasses are worn. He intends securing a patent.

A new field is here opened for exploration. On the subject of spectacles, we have a few words of practical comfort for those afflicted with weak eyes, and those who have tender eyes. The use of spectacles at an early age is more injurious than beneficial. From a fair test of the merits of glasses, we have laid them aside, to our benefit. We believe that glasses should never be used but in cases of extremity. Frequent bathing and the use of a soft pad to pummel the eyes gently will cure many defects in vision and strengthen tender eyes in a wonderful manner.

Improvements in Lace Dressing.

John Keely, of Nottingham, England, dyer and lace dresser, has taken out an English patent, for an improved mode of dressing lace and other fabrics requiring like finish, so as to preserve them from absorbing dampness from the atmosphere and giving the articles so dressed a firmness that preserves them from creasing or wrinkling. The composition used is one pound of borax and five pounds of shellac dissolved in hot water. This is done by adding to three gallons of boiling water the pound of borax and when dissolved adding the shellac, keeping the water at the boiling point and stirring well until all is dissolved. The shellac, however, may be otherwise dissolved and in different proportions.—The only part of the discovery that is new, is the application of shellac to dressing and finishing lace, and other fabrics that require a like finish. But the solution described alone answers well and may be mixed with starch or glue as stiffening material. The glue must be mixed with the shellac at boiling heat, stirring all well together. When the fabric is wanted to feel thick, it is best to mix glue with the above solution of shellac and borax. One pound of white glue to the three gallons of the shellac solution makes an excellent composition. The lace is dipped into the solution and then spread out to dry on frames. For silks, it is put on with a sponge. To our dyers this is important information. Those who have much silk dressing, especially re-dyed and cressed silks, the use of the shellac must be valuable, for it is well known that glue and gum dressed silks soon absorb moisture, and the old wrinkles that were in them before they were framed, or dressed on the cylinder, all come back again, hence the objection to re-dyed silks because so easily known by their cresses. Here is a remedy for the evil, at once plausible and worthy of being adopted by all. Whether it may be a good solution for dressing crape or not, we cannot tell. It should at least be tried. If it will answer for crape, the discovery is a golden one to those who know the trouble of dressing that article.

ELECTRO MAGNETIC ORE SEPARATOR.---Figure 3.



This is a section view and shows the manner in which the magnets are arranged on the cylinder. D, is the cylinder. T T, the magnets. E, the current wires ; and X, the trough or vessel of quicksilver. The cylinder is about 30 inches in diameter, and the magnets are about five-eights of an inch thick with four polar points, the negative and the positive on each magnet. There is a space of about three-fourths of an inch between each of the magnets and a large one has had ten magnets in a row with thirty rows on the cylinder. It will be observed that the wires are alternately wound in the direction of the polar currents. One wire is now represented as dipping in the mercury, but one fourth of all the magnets are charged at the same time as that number touch the mercury on the under side of the cylinder, but the magnets are charged and discharge successively in rows. The ore is carried forward on the endless apron, and the magnet cylinder by revolving in the same direction as the apron, lifts the ore, while the dross is discharged from the apron while passing over the roller.

This machine is not an untried one. It has been fairly tested, having been in operation at Plattsburg for some time, and has exceeded the most sanguine expectations. When ore is associated with hornblende, no other process of separation can compare with this, and there can be no doubt but it will revolutionize the process of ore separation. Measures have been taken to secure a patent, and those who may desire more intimate information can attain the same by communicating, post paid, with the inventor at Plattsburg, N. Y.

Track Sprinkling.

On the Providence, R. I. Railroad they have a contrivance for sprinkling the track which is excellent as the sand on that route is injurious to speed and disagreeable to passengers. A tank of 2000 gallons has been found sufficient to sprinkle the whole track from Providence to Stonington, the train going at the rate of twenty miles an hour. The dust has been laid so effectually as to give no annoyance to passengers ; the friction of wheels on the rails has greatly diminished ; the bearings of the wheels and journals have been much less worn, and such a thing as a "hot box," to a car has not been known, even at the greatest speed, since the sprinkler has been in use. The labor of cleaning the cars and the wear upon them have also been greatly diminished. The sprinkler is placed just behind the locomotive, so that while the locomotive is constantly traversing a dry and comparatively dusty track, the cars are going over a wet one.

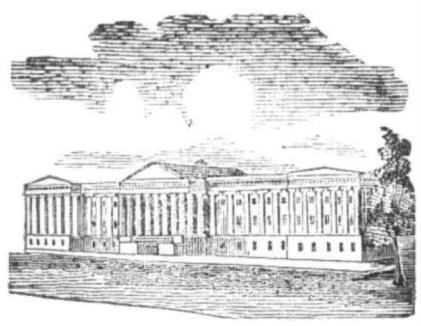
Railway Switches.

Andrew Rallston, of West Middletown, Md., has made an improvement in Railroad switches, for which a patent has been obtained. His claim consists in the combination with the central cross-tie of the switch, the stud, the detaching plate, the lever, the spring, and the friction plate, with the apparatus in the same, in such manner, that the forward motion of the grinding-wedge to be secured to the front end of the locomotive, will unfasten and move the switch to the desired position, and switch refasten itself again.

Improvement in Surveying.

Mr. M. Coate of Clark County, Ala., has invented new tables to probate with the square in surveying, which has answered a most important purpose, in his avocation of surveyor of the above county.

The machinery in England equals the labor of of six hundred millions of men.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending June 6, 1848.

To J. P. Gaume, of Cincinnati, Ohio, for improvement in machinery for cutting Bungs. Patented June 6, 1848.

To J. P. Gaume, of Cincinnati, Ohio, for improvement in the machine for dividing and cutting the teeth of Cog-wheels. Patented June 6, 1848.

To Jonathan W. Ward, of Cambridge, Mass. for improvement in tempering Clay. Patented June 6, 1848.

To Peter H. Watson, of Rockford, Illinois, assignor of William Watson, of the same place, for improvement in Wheat Fans. Patented June 6, 1848.

To C. B. Baker, of Troy, N. Y., for improvement in Brick Presses. Patented June 6, 1848.

To Isaac Gregg, of Pittsburg, Penn., for improvement in Brick Presses. Patented June 6, 1848.

To Proctor P. Cowles, of Cabotville, Mass. for improvement in Hooks for Joiner's Benches. Patented June 6, 1848.

To William A. Cole, of New York City, for improvement in Joiner's Planes. Patented June 6, 1848.

To Daniel Carpenter, of Cohoes, N. Y. for improvement in Furnaces for Steam Boilers. Patented June 6, 1848.

To Byron Densmore, of Kendall, N. Y., for improvement in Straw Cutters. Patented June 6, 1848.

To Huston, of Troy, N. Y. and Huston, of Wilmington, Del., for improvements in Propellers. Patented June 6, 1848.

INVENTOR'S CLAIMS.

Magneto Electric Machines.

To G. H. and B. H. Horn, of Boston, Mass. assignors to D. C. Moorhead, of New York City. For improvement in Magneto Electric Machines for giving shocks. Patented April 11, 1848. Claim.—We are aware that the contractile helical spring has been applied beneath a lever, to detach the armature used in the electro magnetic telegraph for registering or marking ; but we do not know any instance in which an expansive helical spring has been employed, in direct contact with the armature itself for the same purpose in the magneto electric apparatus, for medical or other purposes ; nor any in which the same effects are produced by a spring enclosed and protected in the manner we have described and shown. We therefore claim as new and of our own invention and desire to secure by letters patent of the United States, the application of the helical expansive spring, conjointly with the stud or pin acting within one part of the U-formed magnet or in any analagous or substantially similar manner, for the purposes above set forth and shown.

Cleaning Wool and Cotton.

To Addison Arnold, of Walpole, Mass.—For improvement in Beater Cylinders for Cleaning Wool and Cotton. Patented May 9, 1848. Claim.—I claim the substitution of clothing made of wire, set in elastic substances in the place of permanent teeth, in combination with bars of iron or steel to protect the clothing.

Smut Machines.

To Jesse Taylor, of Auburn, N. Y. Improvement in Smut Machines. Patented April 11, 1848. Claim —What I claim as my invention and desire to secure by letters patent, is making the rubbers and concave with a notched and smooth portion, in the manner and for the purpose above set forth.

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NEW YORK, JUNE 17, 1848.

Steam Navigation.

The present great increase of personal intercourse between the people of different nations, is the result of different applications of the steam engine. Many who look upon splendid steamers forget that they are the result of a different application of the steam engine from that of the locomotive. It is true that the difference is great but still there is a similitude. It is the steam engine that may be called the great civilizer of the present age. The application of the steam engine to navigation has created a perfect revolution in commerce already, although it is as yet but in its infancy. The origin of applying steam to propel vessels is claimed by many. Papin in 1690 proposed to propel boats by racks and pinions with pistons working in steam cylinders. This was undoubtedly the first steamboat, although Spain claims that invention as hers in the person of one Blasco de Garey, who exhibited his steamboat before Charles V. in 1543, at Barcelona. The first patent for a steamboat was granted to Jonathan Hulls, of London, in 1736. He constructed a boat and the experiments were very fair, but he met with much opposition and abandoned the project. His method of propulsion was by a wheel at the stern. In 1788 Fitch and Rumsey of this country, made some very promising experiments but from the great imperfection of their engines, their schemes were abandoned. It was not until James Watt had greatly improved the steam engine that it was successfully applied to navigation, and it was one of his engines that Fulton applied to propel his ever-to-be-remembered "Clermont," in 1807. Previous to this Messrs. Miller, Symington & Taylor constructed a boat on the Forth and Clyde Canal, Scotland, which went at the rate of five miles an hour, an account of which was published in the newspapers of that period, but that boat was laid aside for 18 years —the period when Fulton successfully and permanently established navigation by steam. Some have endeavored to make light of Fulton's claims to this invention, but we must remember that it is he alone who brings an invention into successful operation who is entitled to the reward. It was not until 1812 that Great Britain again attempted steam navigation. This was done by Henry Bell, of Glasgow, with a boat of 25 tons, named the Comet. It was perfectly successful, and from that day to this steam navigation has increased and improved and never been suspended in Britain, while in this country it is older by at least five years. It is somewhat singular that New York in America, and Glasgow in Scotland, still maintain a supremacy over other places for steam ship building—the first impulse seems still to be felt. The first line of steamboats that ever was established between two distant seaports, was by David Napier, uncle to the engineer who has fitted up all the engines of the Cunard line; this was in 1818, and to this fact of steamboat engine building having been so long in the Napier family, may be attributed the facilities at command and the experience to guide which have raised the name of Robert Napier to such eminence as an engineer.

About twenty years ago it was a common opinion among seafaring men that "steamboats might do very well for navigating rivers but never for crossing the ocean." This idea appears strange to us now, but all men are apt to doubt new projects. What would Fulton himself now say to see the Washington, the Herman and the United States making the passage to England in twelve days, and a weekly communication kept up by steam between the United States and Britain. Perhaps it would not be too much to predict that in fifty years from this period mere sailing vessels will scarcely be known on the Atlantic, and for fifty dollars any citizen will be able to go and visit London and return to New York.—Far greater wonders than these have been accomplished during the last fifty years. The people of Scotland have erected a monument to Henry Bell at the place to which his first steamboat made her first trip. It is a neat pile with the inscription, "To Henry Bell." It stands upon the ruins of the old Roman wall that divided the dominions of the then mistress of the world from those of the fierce and unconquered Caledonian—it is a romantic spot. We hope yet to see as suitable and a still more noble monument erected to Robert Fulton.

Marble and Cements.

In a late article in Chambers' Edinburgh Journal, there is a somewhat interesting although not a very instructive account of artificial marble and valuable cements discovered recently by a lady, Mrs. Marshall. The discovery is based upon a theory adopted by Mrs. Marshall, "that the animal and vegetable remains found in the second and tertiary strata, were in their aggregation the result of chemical or electric action exerted upon particles." By a number of experiments in mixing the sulphate of lime with shells, and letting the mixture remain for a long time, an artificial stone was produced, the substance gradually growing harder, hardening from the centre outwards. A few leaves dropped on the surface of the mixture when it was fluid sunk upon the surface and became exactly like those curious worm like borings which occur in the face of compact limestone. Among the experiments of this scientific lady, a cement has been discovered which is a perfect cure for dampness in cellars—walls that have been covered with it for two years, and which formerly were uninhabitable from effluvia and dampness have been rendered healthy and perfectly dry. This cement is very valuable, but the process of making is not explained.—It however brought to our recollection a patent marble cement discovered by Keene, some years ago, which may be of use to some of our readers. Plaster of Paris with about one-sixteenth its weight of alum is mixed with water into a dough and burned in a furnace like gypsum. After this it is ground to powder and is fit for use. This cement is employed like stucco, but it can be colored with ochre and the sulphate of copper, alkanet root, and a number of other coloring substances so as to give it the appearance of veined marble, or mosaic work. This is capable of a fine polish but does not stand the weather, yet for flooring, it is both handsome and durable, and can be made and used by any person.

New Charts.

Lieut. Maury of the Observatory at Washington, has published some charts of "winds and currents," which should meet the attention of all our navigators. He has discovered a region of better winds along the great circle to South America, which is a most important one; for the passage to Rio, China, and all places south of the Equator is shortened some ten or fifteen days. No vessel should go to sea without these charts. We understand they will be given to any navigator who will send the track of his vessel with a record of his winds and currents, to the Observatory at Washington; and who, upon application to that office, will be supplied with the charts, sailing directions, &c.

Ascent of Popocatapetl.

Five American officers of the army in Mexico and one Englishman, have ascended the highest peak of the mountains of North America. Twenty five attempted the ascent and only six accomplished it. They planted the star spangled banner on the highest elevation and returned to the city of Mexico. The Indians could not believe that they had been there. On the top was a huge crater 500 yards in diameter and about as many in depth.

Mr. John Eggleston, millwright of Rochester, N. Y., has built for Senor Aguirba, of Bilboa, Spain, a model of a Flouring mill, which is to be used as the pattern for the construction of one in that far distant country.

Some skillful engineer has calculated that the present demand for wood, as fuel in this country is about 10,210,000 cords per annum.

Ancient Work on Mechanics.

I see that Mr. Ewbank in his valuable work on Hydraulics, page 285, refers to the celebrated work of *Ramelli*, and states that he had not been able to procure a copy of the work. It may be a public service to mention that a copy of this rare work, originally belonging to the Library of the Jesuits at Quebec, which was purchased at its sale when the Order was suppressed, after the capture of Canada by the the English, and subsequently fell into the hands of the late Simeon De Witt, and was sold a few years ago by me to the Patent Office. It is the only copy of the work that I have ever heard of as being in this country, and is an extraordinary exposition of the advance of mechanic art at its era. It was told me that directly after its reception at the Patent Office, a number of applications ready for the seal were rejected by reason of their exhibition in its pages. Whilst it was in my possession I used it repeatedly to show inventors that their contrivances had been anticipated nearly two centuries and a half ago.—This will readily be credited upon a perusal of the contents of the book subjoined, which will shew the value and extent of the work.

The work is in folio, 338 pages letter press, duplicated Italian and French descriptions of 195 different engines or combinations of engines in military or isometrical perspective, delineated perfectly and lucidly; each engraving, folio page, devoted to a separate engine or machine, ornamented with appropriate embellishments of building, landscape or fortress, with men and animals in proper position of service in connection with the subject of the drawing.

The Frontispiece represents the author in military undress at a table, with his dividers in hand measuring the plot of a fortress, on a plan lying before him, the picture being completed by engineering instruments, armor, &c. in the best style of the portraits of the day.

The title page is:—"Le diverse et artificiose machine, del Capitano Agostino Ramelli, del ponte della Tresea Ingegniero del Christianissimo Re di Francia of di pollonia. Nelliq ualli si contengono varii et industriosi monumenti degni degrandissima speculatione per caverne beneficio infinito in ogni sorte d' operation. Composto in lingua Italiana et Francese. Aparagi in casa del autore co privilegio del Re. 1588."

The work contained the description of the following Machines:—

110 machines for elevating water. 2 Coffer Dams. 7 Grist Mills moved by water; 3 do moved by horse; 1 do moved by men walking on an inclined wheel (dog churn movement; 1 do moved by men walking on a horizontal wheel (horse boat movement); 4 do moved by men turning windlasses or cranks; 2 do moved by weights; 2 do moved by wind. 1 portable grist mill. 2 mills for sawing stone. 1 mill for sawing wood. 1 blast forge. 2 Excavators for removing dirt in constructing canals and military fosses. 13 military flying bridges, of very extraordinary and ingenious construction, some of them being pontons—one kind of which were represented as propelled by water wheels moved by cranks. 13 machines for lifting and forcing heavy gates of fortresses from their hinges, and breaking locks and guard bars of portcullisses and grates of sewers, &c. in fortifications. 10 cranes and lifting machines. 5 for drawing heavy loads. 3 fountains. 1 artificial tree with singing birds, as a parlor ornament. 1 mode of conveying artillery over mountainous country. 4 balistæ for throwing missiles. 1 Reading Desk, being a vertical wheel reaching from the ceiling to the floor of a Library. The wheel is double, that is, two wheels parallel to each other and say two feet apart. Between these parts, at short distances, small desks balanced on a central axis are placed, and by wheel work connected with a fixed centre in the main wheel, are kept at the same angle with the horizon whatever way the wheel may turn, (being in effect the modern vertical paddle wheel,) so that books of reference being placed on these desks, the scholar sitting in front of the wheel has only to turn it till the work he desires to consult comes opposite to him, the other works in the meanwhile moving round with the wheel but remaining undisturbed in posture.

Amongst the various inventions, *since reproduced*, and many of them patented, I recollect—rack work frames for converting reciprocating into circular motion and vice versa, viz. the double parallel toothed rack embracing a half toothed wheel, as used in printing presses; eccentrics in place of cranks circular rotary pumps—some with pistons sliding through an eccentric axis, some with hinged valves pressing on an eccentric piston, some with ratched shaped pistons with sliding stops or valves acting upon them; quadrant shaped pumps; horizontal wheel or moveable floor, as prime mover for application of animal power, and oblique wheel for same purpose, as described amongst mills, being the same arrangement as those of our horse boats and dog churns; paddle wheels for boats; besides a number of designs for screws, &c. &c. amongst the 110 machines for elevating water, which have escaped my memory.

I need hardly say that the work is eminently worth the perusal of all interested in the mechanic arts or curious in their state centuries ago, and progress since that time.

R. V. DeWitt.

Albany, N. Y. June, 1848.

[By the above interesting letter our readers will perceive what resources our Patent Office has for judging of works old and new, and hence deciding according to the strict letter of the law "new invention." Our inventors need not be surprised at the great numbers of rejections for patents. The Patent Office has a large and valuable library of works on all branches of the arts and sciences. This is another nail to the argument for the Smithson fund to publish a work on the progress of inventions. There is no work so much needed at the present moment—it would save thousands to our country every year. No one would believe, unless he had really experience of the fact, of the great amount of time and money expended every year, in inventing something old. It is all true invention with the inventors, but how much toil, anxiety and means might be saved by the publication of such a national work as we suggested. We think that our suggestions will yet be acted upon. It is our opinion that the gentlemen at the head of that Institution and also the Patent Office would feel a deep interest and pleasure in collecting and arranging materials for the work. Congress also, we think, would grant a sufficient sum to aid the enterprise.

Patent Agents.

The attention of manufacturers, machinists, inventors, &c. is called to the advertisement of Mr. Gilroy, in another column. He is agent for a number of valuable patent rights and has an extensive acquaintance with all the patents issued and expired, which gives him peculiar advantages.

We would also call attention to the advertisement of Messrs. Robbins & Johnson, in the city of Washington. They are able and experienced men.

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Arts, Manufactures and Machinery.

Accumulating power.—Fly wheel necessary in Rolling and Punching Iron.—Regulating Power.

Whenever the work to be done requires more force for its execution than can be generated in the time necessary for its completion, recourse must be had to some Mechanical method of preserving and condensing a part of the power exerted previously to the commencement of the process. This is mostly accomplished by a fly-wheel, which is in fact nothing more than a wheel with a very heavy rim, so that the greater part of its weight is near the circumference. It requires great power applied for some time to set this in rapid motion, and when moving with considerable velocity, if its force is concentrated on a point, its effects are exceedingly powerful. In some of the iron-works, where the power of the steam-engine is a little too small for the rollers which it drives, it is usual to set it at work a short time before the red-hot iron is ready to be removed from the furnace to the rollers, and to allow it to work with great rapidity until the fly has acquired a velocity rather alarming to those unused to such establishments. On passing the softened mass of iron through the first groove the engine receives a great and very perceptible check, and its speed is diminished at the next and at each succeeding passage, until the iron bar is reduced to such a size that the ordinary power of the engine is sufficient to roll it.

The powerful effect of a large fly-wheel when its force can be concentrated in a point was curiously illustrated at one of the largest of our Manufactories of steam-engines. The proprietor was showing to a friend the method of punching holes in iron plates for the boiler of steam engines. He held in his hand a piece of sheet-iron three-eighths of an inch thick, which he placed under the punch; observing, after several holes had been made, that the punch made its perforations more and more slowly, he called to the engine-man to know what made the engine work so sluggishly, when it was found that the fly-wheel and punching-apparatus, had been detached from the steam-engine just at the commencement of his experiment.

Another mode of accumulaing power arises from lifting a weight and then allowing it to fall. A man even with a heavy hammer, might strike repeated blows npon the head of a pile without producing any effect. But if he raises a much heavier hammer to a much greater height, its fall, though far less frequently repeated, will produce the desired effect.

Uniformity and steadiness in the rate at which machinery works are essential both for its success and duration.

The beautiful contrivance of Mr. Watt, who invented the *Governor* of the steam-engine, must immediately occur to all who are familiar with that very admirable Machine.

The regularity of the supply of fuel to the fire under the boilers of steam-engines contributes to the uniformity of their rate, and also economises the consumption of coal. Several patents have been taken out for methods of regulating this supply. The general principle is to make the engine supply the fire by means of a hopper, with small quantities of fuel at regular intervals, and to diminish this supply when it works quickly. One of the incidental advantages of this plan is, that by throwing on a very small quantity of coal at a time, the smoke is almost entirely consumed.

The dampers of ashpits and chimneys are in some cases connected with Machines in order to regulate their speed.

Another contrivance for regulating the effect of machinery consists in a vane, or a fly of little weight but presenting a large surface. This revolves rapidly, and soon acquires a uniform rate, which it cannot greatly exceed; because any addition to its velocity produces a much greater addition to the resistance which it meets with from the air. The interval between the strokes on the bell of a clock is regulated by this means; and the fly is so contrived, that this interval may be altered by presenting the arms of it more or less obliquely to the direction in which they move.

This kind of fly, or vane. is generally used in the smaller pieces of mechanism, and, unlike the heavy fly, it is a destroyer instead of a preserver of force. It is the regulator used in musical boxes, and in almost all mechanical toys.

Another very beautiful contrivance for regulating the number of strokes made by a steam-engine, is called the cataract, and depends on the time required to fill a vessel plunged in water, the valve through which the fluid is admitted being adjustable at the will of the engine-man.

Skill in Darning Rents.

A man at Constantinople, having left in charge of a friend of his, a purse without seam or join, in which he had placed a certain number of diamonds, complained on his return from distant travel, that his number of jewels was not correct. The friend maintained the integrity of his trust and adduced as proof the entire woof of the the purse, in which neither seam nor join appeared, and the seal of the owner still remained untouched at the mouth of the purse. The owner of the jewels was forced to admit both the facts but still persisted that the amount of diamonds was no longer what he had left. The case was brought before more than one magistrate, but nothing could be elicited upon the subject, and the unaltered condition of the purse, which the owner could not deny, was considered conclusive evidence against his claim. In despair, he applied to the Sultan himself, and the strange persistency of his demand impressed the latter so much, that, though compelled, upon the face of the facts, to dismiss his claim as untenable—the subject remained impressed singularly on his mind, and induced him to try the following experiment At morning prayer, the next day, when the slave who usually brought the carpet, upon which he knelt, had withdrawn, he made a long slit in it, and left it to be again withdrawn by the slave. When the latter came to fulfil his duty of rolling up and removing the precious carpet, he remained aghast at the injury it had received, and immediately apprehending the dreadful effects of the Sultan's displeasure, hastened with the rug to the quarter of the city where the Jews resided, and seeking out one peculiarly renowned for his skill, committed it to his best exercise of it, and carried it back so restored, that the next morning it lay spread for the Sultan's use, without the trace of either damage or reparation. The Sultan no sooner perceived what had been done than he called the slave, who tremblingly confessed what he had done. He was immediately despatched in search of the pre-eminent cobler, and the Jew no sooner appeared before the Sultan, than the latter, sending for the sealed purse, about which the controversy had been held, charged him with having in like manner repaired a slit in the woof of the apparently uninjured bag. The Jew instantly admitted the fact, and thus the reclamation of the poor defrauded friend and diamond-owner, was substantiated.

It is wonderful to what perfection people will attain in a certain branch of business steadily pursued. The skill of the Constantinople Jews is successfully imitated by numerous girls in the manufacturing districts of Britain. In Paisley, where a great number of fine shawls are manufactured and in which holes are frequently made in the clipping of the wrong side, there are girls in every warehouse, who will darn the same and render it perfectly invisible from any other part of the shawl. This is an infinitely more difficult job than the darning of a carpet, or a purse, as some of these shawls are very fine. There are those who wear a hundred dollar shawl, that had a hole in it before it entered the merchant's store, and it had been sold and worn, made as perfect by the needle of the darner, as it was when it came from the weaver.

Upwards of twenty tons of railroad spikes are manufactured every week at an establishment in South Malden, Mass.

Green Tea and Black Tea.

There are two or three opinions common in the United States about green tea, which are great mistakes. One is, that the Chinese themselves do not use green tea, this is a mistake. But they don't use such green tea as is used in England and America. They most commonly pick out the fine and dried parts, and separate them, calling one gunpowder, and another hyson, and another hyson skin.

The second mistake is, that the green tea is made by roasting it on copper plates, which turn it green, and give it its sharp astringent qualities. All the tea made about Zeetung (a good many thousand pounds) is fried in iron pans.

But if the Chinese don't make green tea on copper pans, they do what is a great deal worse. They mix Prussian blue with what is sold to foreigners, which gives it the greenish blue color it so often has, and something of its astringent qualities. Prussian blue is poison; and the only reason why green tea does those who use it at home so little harm is, that it requires but a small quantity to color a large amount of the tea. But still, small as the quantity is, it does harm; and the people not accustomed to the use of green tea, can hardly sleep after drinking it. You may almost always tell whether there is any Prussian blue in the tea, by drawing off the infusion, and placing it in a white cup. If the infusion is perfectly clear, and of a slightly saffron green color, it is all right; but if it has a dirty appearance, as if there was some coloring matter suspended in it, than there is some of the Prussian blue, or something else, there.

The Chinese put the Prussian blue, and such stuffs in the tea, as foreigners have taken a notion that green tea is not green tea unless it is very green. People in England and America don't like green tea, such as the Chinese use, and won't buy it. Well, the Chinese are very accomodating people, and they laugh in their big sleeves, and say, "Since the foreigners want very green tea, we'll give it to them; but they must pay us a little more for making it so green." Little green tea goes to the United States, that has not more or less of Prussian blue, or some other drug added to give it a higher color. The foreigners who live in China very seldom drink green tea, and use none but the black. It is very much better, and has not the same stimulating effect on the nerves that many people suffer from when they drink the green. Where so much green tea is raised, black tea is more used by the people, though the greater part of what is used by the mass of the people, is very coarse indeed, and not half so good as our common sassafras tea.

Cotton Cultivation in India.

A late report made by a select committee of the House of Commons, upon the subject of the cotton trade, seems to put the question about that country's deriving its supply from the raw material from the East Indies to rest for an indefinite period Amongst other things, this report states. "The cotton goods annually exported from England amount to about $25,000,000 in value, or nearly one half the whole amount of exports. The manufacturing of cotton goods employs 3,000,000 people, or about one-tenth of the whole population. These two statements are decisive, as the importance of this branch of business to Great Britain.—The importation of raw cotton from India commenced in 1790, a year or two before that from America began. Since 1813 the trade from India has been perfectly free. India furnishes in weight, about one eighth of the entire British consumption. But, in point of quality, it is only about half the value of American cotton, The value of India cotton imported, is, therefore about one-sixteenth of the whole. "India can never compete with America in the production of cotton. Cotton is known to have been cultivated in India more than 2,300 years, but yet the quantity exported does not exceed in quantity one-fourth, or in value one-eighth, of what is exported from a few of the Southern of the United States, where it has not been known sixty years. The voyage from India is about three times the length of the American voyage, and the freight is, at least, twice as much, but allowing for the difference in value, the expense is four times as much." Cotton is brought from its place of growth to that of shipment from two to six hundred miles. "Under all circumstances, the project of substituting Indian for American cotton is perfectly visionary."

"Those," says the report "who argue against the propriety of being dependent upon a foreign country for cotton, forget that England is entirely dependant upon one country for tea, which furnishes nearly £25,000,000 of the annual revenue, and almost entirely upon another for tobacco which raises nearly twenty millions of the same revenue.

Evils of Match Making.

In England and Germany, attention is being directed to a series of peculiar affections to which the workers in the manufacture of lucifer matches are liable. The establishment of the fact that there was anything of this nature connected with the business was recent, for the first establishment only commenced operations in Germany sixteen or twenty years since, and the gentleman who claims priority in England, has been in the business but ten years.

The first operations of cutting the wood, counting and placing the matches in frames for dipping, and the dipping in sulphur are not productive of injury, but the other stages comprising the grinding and mixing of the explosive compound, the process of dipping into it, and the counting and boxing, are attended with serious inconvenience from the action of the fumes of the phosphorous. Besides irritations of the nostrils, eyelids and throat, a peculiar disease of the teeth and gums is caused which runs sometimes to alarming extents. The gums become soft and spongy, ulcerate and fall away, and the teeth become loosened and fall out. Often portions of the jaws die and are removed.

Since these effects have been noticed, measures are taken for protection, and it is found where soda is used in solutiou as a wash, and free ventilation is secured, the injury is considerably abated.

An Old Printer.

We have in our employ a printer, 76 years of age, who commenced his apprenticeship of seven years in the King's Printing Office, London, in 1785—64 years ago. He was a soldier under Sir John More at Corunna in Spain, in 1809, where he received a ball in the right arm. He was present at the burial of Sir John, and remembers the minute particulars of the scene. He was also with the Duke of Wellington, through his whole campaign, and lost an ankle bone by a grape shot in the battle of Waterloo. This old man after having all this hard service, is still one of the swiftest and best compositors we have ever known, and though lame from his wounds, is still able at early morn and dewy eve, while younger men are wasting the golden hours in sensual pleasures, or snoring them away in bed, to ramble over the fields, and through the woods in search of wild flowers, with which he forms tempting boquets for the belles of the village, or to gratify the wishes of some favorite little girl. It speaks well for the heart of the old man, that the children all love him.—*Blackstone Chron.*

Gibraltar.

Gibraltar, the strongest fortress in the world, owes its safety to the invention of an engineer, who, during the memorable siege from 1780 to 1782, by the Spaniards, suggested the idea to Gen. Elliot, the Governor, of throwing red hot balls at the leathern-covered gun-boats and floating batteries of the Spaniards. It was found to be successful; the Spaniards were forced to give way, and break up the seige, from the effect of a power so resistless. Redhot shot, however, were invented long before the siege of Gibraltar. The Turks used it against the Greeks, at the siege of Athens.

There are 218 newspapers published in Pennsylvania, exclusive of miscellaneous publications. This, we believe, exceeds the nnmber published in any other State in the Union. Ohio boasts of 174, and New York of about 200.

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TO CORRESPONDENTS.

"A. H. of Maine."—We will proceed as you have requested, and will soon send on the papers, &c.

"J. T. P. of Mass."—Much obliged to you for the information. Publish next week.

"N. W. A of Ala."—You will hear from us soon.

"S. P. I. of N. Y"—Maudsley of London was the first to employ the crank to steam-boat propulsion in England. Cog wheels were applied to the paddles previous. Those who talk of rotary motion in steam engines may look at this during their leisure.

"J. C. of Boston."—All have been sent on

"J. W. B. of Ohio."—Write to the Machine Shop, Lowell, Mass., and you will get all the necessary information about the shearing machines.

"T. C. M. of Mass."—We shall be very happy to hear from you again about your machine for sawing ship timber. It must be a good invention. Write when you have things prepared.

"A. A. of Mass."—We have published your claim this week. It must be a very valuable invention.

"S. I. B. of Va."—There is no patent on the *air vent foreboy*, that we are aware of.

"B. Y. of Ga."—You will have to send another dollar before we can send the first half year of this volume.

"R. S. I. of S. C."—We have not got the proportions yet.

"Subscriber," wants to know how much water a cylinder of any given dimensions will contain. We are not in the habit of answering anonymous communications, but the following is the way to find out. How many cubic feet is there in a cistern 5 feet wide, 10 feet long and 4 feet deep?

5X10X4=200 cubic feet.

200X1728=345600 cubic inches.

$\frac{345600}{283}$=1221.57 wine gallons of water.

There are 1728 cubic inches in a cubic foot and 283 cubic inches in a wine gallon.

"J. T. of Pa."—Your improvement in the slide valves is not new. We have drawings of the same made three years ago.

"J. L. of Md."—Why do you not apply your power at once to the machinery you are to drive. What is the use of throwing water up hill to run down again?

"A. R. of Va."—The best thing you can do is to publish an engraving of your machine in the Scientific American. This is the way to bring it before the world.

"R. McN. of S. C."—Your request shall be complied with. Yours will undoubtedly be a great manufacturing State yet.

"S. B. of Ohio."—Never mind what people say about you, or your experiments—experiments lead always to some good results.

☞In consequence of our very extensive correspondence we would consider it a favor if those addressing us would be as brief in their communications as possible, and write in a plain comprehensive style.

Patent Office Report.

We are indebted to Mr. Burke, Commissioner of Patents, for a bound copy of the Patent Office Report for 1847. We will refer to the Reports of Examiners Fitzgerald and Page, giving extracts therefrom, at some other time. These reports are exceedingly interesting, both as relates to Chemistry in Mr. Page's, and Machines in Mr. Fitzgerald's. There are 574 pages taken up with statistics and useful information relating to the agricultural interests of our country. The Reports of the Patent Office this year are very voluminous.—We shall notice this one more at length next week.

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Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

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The undersigned respectfully invites all who may have achieved any discovery in science and arts—all who may have invented or improved any useful machine or manufacture, to communicate with this Agency.

The undersigned pledges himself most sacredly never, under any circumstance or pretence whatever, to divulge the secrets or business of any inventor to another inventor; nor will he ever show the drawings or specifications of one party to another party, or give any explanations without permission. His offices, or rooms, are especially adapted to this purpose, being so arranged that each section of the business is managed in a separate apartment, and so that no applicant can possibly get a glance of the drawings or specifications of others. Inventors, from sad experience, know the importance of such an arrangement.

Mechanical drawings of every description executed with despatch, and every information and assistance rendered to Manufacturers, Inventors, Power Loom Makers, &c. Our terms will be according to the nature and extent of the services performed.

For integrity and capability the undersigned refers to:—Horace Greeley, Esq. Tribune Buildings, New York. Wilbur & Scott, (formerly Masters, Markoe & Co) 15 Stone st. N. Y. Harper & Brothers, 92 Cliff st. N. Y. A. & E. S. Higgins & Co. 62 Broad st. N. Y. John S. Worth, Merchant, 179 Greene st. N. Y. Alderman Wm. Gale, 119 Fulton st. N. Y. W. H. Starr, Esq. Editor Farmer and Mechanic, 69 Beekman st. N. Y. Wm. Sloane, Merchant, 245 Broadway N. Y. Col John Travers, President Phœnix Manufacturing Co. Paterson, N. J. Thomas Rogers, Esq. (Rogers, Ketchum & Grosvenor,) Paterson, N. J.—Benjamin Marshall, Esq. Troy, N. Y. Benjamin F. Wolcott, Esq. New York Mills.

CLINTON G. GILROY,
Author of the "Art of Weaving," "Practical Treatise on Dyeing and Calico Printing," "Pastoral Life and Manufactures of the Ancients," "Wonders of Nature and Art," &c.

All letters must be post paid, and addressed to Clinton G. Gilroy, 71 Nassau st. New York. j17 3w

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Office on F street, opposite Patent Office, Washington, D. C. j17 tf

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WE will pay 10 cents each for 100 copies, Nos. 1 and 16, Vol. 2, Scientific American, delivered at this office, free of expense and in good order.
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FOR SALE CHEAP!

A NEW and convenient House and Shop with water privilege, situated in the centre of one of the pleasantest villages in Massachusetts. The house is of modern style, built in 1844, is 2 stories high in front, with a rear building attached, which is used for a kitchen. The shop is spacious and located but a few rods from the house on a stream of water, with a good breast wheel of suitable dimensions for doing a large business. The above Property is located in the beautiful village of Monson, 17 miles east of Springfield, and but 3 1-2 miles from Palmer Depot and the Western Railroad. It is a desirable property for a mechanic of any kind, and will be sold for less than its true value The Willamian tic and New London Railroad will pass within half a mile of said place when completed, and a Depot will there be established. Monson contains several large Manufacturing establishments and a flourishing Academy, and when the new Railroad is completed it is presumed that this property, which is now offered for $1300, will bring at least $2500.

Address (post paid,) ALBERT NORCROSS.
Monson, Mass., June 1, 1848. j3 tf

Stave Dressing Machine.

THE undersigned are manufacturing and have now in operation, a machine for **Dressing Rived Staves,** which will dress 126 hogshead or 170 barrel staves per hour, with one horse power, and with two horses will double the number

It will dress crooked and winding staves to perfection, and leave the full thickness on those with thin edge, a desideratum worthy of attention.

The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform fully equal to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to

WM. & E. T. FITCH, 2d., New Haven, Conn., or
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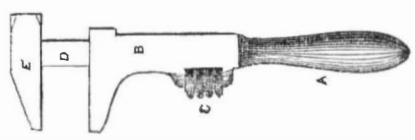
j3 3m*

IMPROVED COACH WRENCH.



THE above is an engraving of an Improved Wrench, invented by George C. Taft, and manufactured by **Newcomb, Dixie & Co.** Worcester, Massachusetts.

A, is the handle; B, the stock; C, the screw; D, the slide, and E, the head.

The advantages of this Wrench are apparent. In the inside of the stock there is a rack which is worked by the screw C, and this rack is covered up free from dirt, and cannot be injured by a fall or other heavy substance on its working parts (this quality no other Wrench possesses yet patented.) This screw can be worked with the thumb and all used with one hand. The ease with which this can be done must make this Wrench invaluable to every mechanic, as the fixed jaw is in the handle and the larger the nut to be screwed up or down the greater the lever power.

The above Wrench will be ready for the trade on the 20th of June next. Orders addressed to the subscribers will meet immediate attention.

NEWCOMB, DIXIE & CO
Worcester, Mass., May 1838. m27 1m*

Ballard's Improved Jack Screw.

PATENTED.

THE advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires,

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS,
Of various sizes, power and price, constantly on hand at the manufactory,
No. 7 Eldridge street, near Division.
m20 tf

Thredgold's Carpentry.

ONE copy of this valuable work may be had upon application at this Office. It is entirely new and published in 1847. Price $3. m20 3t

SPRING STYLE HATS.

I AM now prepared to offer my old and new customers—for Gentlemen and Youth—for Spring and Summer, at wholesale and retail, a very extensive assortment of Hats and Caps—at prices which cannot fail to suit the most economical and prudent purchaser. Store and Chambers—173 Washington street, Boston. W. M. SHUTE. m20 7t*

TAFT'S PREMIUM LETTER COPYING PRESS.

THE Subscriber continues to manufacture his Premium Letter Presses, at Worcester, Mass., and respectfully informs his friends and the trade generally, that he keeps constantly on hand a large assortment, which he offers for sale at reduced prices. Orders by mail will be promptly attended to

GEO. C. TAFT,
Worcester, Mass., April 11, 1848. a22 3m

GENERAL PATENT AGENCY.
REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 189 Water to 43 Fulton street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made un til the inventor realizes something from his invention

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.
m8 SAMUEL C. HILLS, Patent Agent.

PREMIUM SLIDE LATHE.

THE subscriber is constantly building his improved Lathes of all sizes, from 7 to 30 feet long, and can execute orders at short notice.

JAMES T. PERKINS,
Hudson Machine Shop and Iron Works,
m11 Hudson, N. Y.

Gutta Percha Bands.

THE undersigned have been appointed Agents by the American Gutta Percha Company, and are now in readiness to furnish Bands and Belting of any size or length, at the following

SCALE OF PRICES PER FOOT.

Inches.	Cents.	Inches.	Cents.	Inches.	Cnts
2 :	14	5 :	38	9 :	71
2 1-2	17	5 1-2	40	9 1-2	73
2 3-4	19	6 :	45	10	80
3 :	20	6 1-2	49	10 1-2	85
3 1-2	26	7 :	57	11 :	90
3 3-4	28	7 1-2	58	11 1-2	95
4 :	29	8 :	63	12 :	100
4 1-2	35	8 1-2	67		

All Bands of extra thickness will be made by special agreement. Light Bands for Cotton Mills furnished at short notice.

Address MUNN & CO. New York. m18

Lap welded Wrought Iron Tubes
FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

CAUTION TO MANUFACTURERS.

ALL Persons or Companies using E. Richmond's Patent Coiler, without authority, are requested to make immediate application to him at Taunton, Mass., for the Right, as any attempt to use or build the same, contrary to law, will be promptly dealt with accordingly.

a22 2m* E. RICHMOND, Patentee

A. W. Whitney,

Manufacturer of Machines for Working
TIN AND SHEET IRON,
On a new and improved Plan.

Also, makes to order Engine and other Lathes of improved construction. ☞All order by mail, or otherwise, will meet with prompt attention by addressing A. W. WHITNEY.
Woodstock, Vt., April 17, 1848. a22 3m*

☞The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

Machinery.

PERSONS residing in any part of the United States who are in want of Machines Engines, Lathes, or any description of machinery, can have their orders promptly executed by addressing the Publishers of this paper. From an extensive acquaintance among the principal machinists and a long acperience in mechanical matters they have uncommon facilities for the selection of the best machinery and will faithfully attend to any business entrusted to their care. MUNN & CO. a15

"Lamp Depot."

Nos. 134 and 136 Fulton st., Sun Building.

J. O. FAY has just received from the manufactory of J. G. Moffett, a full and most splendid assortment of Solar Lamps for Parlors, warranted perfect; unequalled in style and beauty of finish—new patterns. the handsomest ever offered for sale, and the cheapest Lamp Store in New York m25 3m*

Tinner's Machines.

A. W. WHITNEY'S Patent Improved Tinner's Machines of every description, constantly on hand and for sale by JOHN M. BRUCE & SONS,
a22 3m* 192 Water st., N. Y.

Important to the Public.

IT must not only be important, but interesting to the public to know at what establishment in New York Hats or Caps of the best quality and latest style can be purchased at the cheapest price The place is Knox's, where may be found every variety of a Hat from a shilling Palm Leaf to a Five Dollar Beaver, or a Cap from a two shilling oil cloth to a beautiful new style cloth for $1.50.

Knox's is the place—128 Fulton street. m20 3m

TALBOT'S PATENT REVOLVING BLIND HINGE.

Important to Builders and others.

THESE Hinges are for opening, closing, locking and completely regulating the blind upon the interior of the house without raising the sash. They are adapted to any kind of house, or style of finish. All communications, whether for the purchase of the article, or of Town, County or State rights, addressed to the subscriber, or to J. W. Ingell & Co., Taunton, Mass., will be promptly and satisfactorily attended to.

j3 tf L. T. TALBOT, Taunton, Mass.

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Artificial Cold.

(*Continued from our last.*)

A little consideration of the processes described in this cursory sketch, of the chemical progress of the luxury, will show us that they are all reducible to the two axioms—that evaporation and liquefaction create cold. The philosophy of which fact is simply, that in the change of condition from a fluid to a vapor, and from a solid to a fluid, there is a change in the capacity for caloric. If a certain measure of water is to become vaporized or if a certain weight of salt is to become a solution, these changes cannot occur without the water and the salt receiving an additional supply of heat, which is of course abstracted from all surrounding bodies; and the abstraction of heat being an equivalent expression to the production of cold, we are brought back to the truths with which we commenced, and have seen how evaporation and liquefaction produce cold. Caloric disappears in both cases, and burying itself among the particles of the new product is said to have become *latent*. There are some facts connected with the production of artificial ice which deserve mention here. The congelation of water is materially promoted by rapid motion Water has, in fact, been cooled, and yet remained quite fluid many degrees above the temperature at which it generally becomes ice; but the moment a little movement was communicated to the liquid, instantly the temperature rose to 32 degrees, and the mass became ice, needle-like crystals flying through its substance in a most curious manner. This fact was seized upon by the refrigeratists, and repeated accounts of making artificial ice are extant, in which much stress are evidently laid upon the act of stirring the fluid to be frozen rapidly round with a stick. The experience of mankind also appears to have discovered that water, after it has been boiled, freezes more rapidly than otherwise. It is a custom among many nations of warm climates either to warm the water in the sun, or to boil it, previous to attempting to reduce its temperature. Dr. Black of Edinburgh published some experiments undertaken to determine the question; and his results were, that boiled water does freeze a little more rapidly than unboiled. The act of boiling expels the air; and as in freezing, a similar expulsion takes place, a step is gained in advance of the unboiled liquid.

The means in present use for artificial refrigeration are various, and some of them very interesting. Among these, the employment of porous earthenware may receive an early place. The Moors introduced into Spain this article of luxury, in the shape of very elegant vases, wonderfully light and porous. Water kept in these became rapidly deliciously cool, and, from some peculiarity in the pocess of the manufacture of the vessels, it acquired, in addition, a very agreeable flavor. In Egypt, and in India, and in most sultry regions, this expedient is at the present time a very prevalent one. It has also for some time been extensively employed amongst ourselves—porous wine, butter, and water coolers, of many elegant designs, being now produced at our potteries. But porous ware keeps water coolest where the clime is hottest, the very increment of heat being made to react in the production of cold by rapid evaporation. The Moorish name for their earthen jugs was *Alcarrazos* or *Bucarros*. The Arabs, burnt up with the eternal fire of their scorching country, make use of goat-skins for their water-vessels, which suffer a little water slowly to exude, and thus keep the remainder comparatively cool. A common method of cooling wines in India, is one which will almost appear a paradox, the bottle is wrapped in flannel, wetted with water, and placed directly in the rays of the sun, violent evaporation ensues, and the wine actually becomes very cold. It is a common plan, too, for sailors, in warm latitudes, to cover their wine with cloths, constantly wetted. Apartments are cooled on a similar principle, and an abundance of water is frequently dashed against the walls of the room with the most grateful effect. In India, also, the cold so dangerous and penetrating on a clear night, is applied in a peculiar manner for the purpose of freezing water. Near Calcutta, in an open plain, there are large shallow excavations made in the ground, and filled with straw, upon this, many rows of small, shallow, porous pans, filled with water are placed at sunset. During the night, ice forms in thin cakes, upon the surface of these pans; it is carefully removed before sunrise, and carried to a proper repository, and pounded into a mass there, and then covered over with blankets. This manufacture can only be pursued during the months of December, January, and February: and in the districts where the ice is formed in this manner, it is never produced naturally. This ingenious process must wholly disappear before the new export of Wenham Lake Ice. What a revolution has commerce effected in India, when we remember that early travellers in that country were looked upon as liars and impostors for asserting the possibility of solidifying water into ice.

(*Conclusion next week.*)

For the Scientific American.

Purple Color.

There are three ways of dyeing this beautiful color. 1st. By dyeing the woolen cloth or yarn a light red and blueing it on the top with indigo. 2. By dyeing it first red and then blueing it on the top with cudbear. 3. By dyeing it with logwood and the muriate of tin. The last plan is not only the cheapest but the richest for a full color, but the second plan is the best for a clear light color.

To dye this color, the goods must be pure white and perfectly clean. For five pounds of fine woolen cloth—such as merino twill—one pound of logwood liquor, one ounce of cream of tartar and one ounce of alum with half a wine glass of the muriate of tin, will answer. These ingredients are put into the kettle and when the liquor is boiling strongly, the goods are entered nicely loose and handled with great care and promptness so as to prevent spotting. When the goods are boiled three-fourths of an hour in this they will be found of a good color. The logwood liquor should be boiled and settled two days before it is used. In such light colors as purple, &c. it is best to give the stuffs two or more different dips — This makes a certainty of *levelness* in color, and cleanness and permanency beside. As the color is wanted to be darker more logwood liquor is added, but not when the goods are in the boiler. If wanted on the reddish shade, more muriate of tin is added. No person need be afraid of not dyeing a very good and cheap purple by following the above receipt, only beware of an iron kettle to dye it in.

CLARET COLOR.

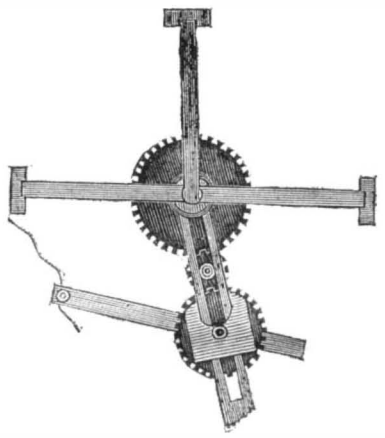
This color is dyed exactly as the purple, only double or three times more stuff is employed to dye it, and the goods do not need to be pure white—an old garment grey, or red, or yellow, can be made claret.

Claret can also be dyed with camwood—a plan which we prefer for woolen cloth, as it is much more permanent and stands the *sun*, as it is commonly termed, better. About 3 pounds of camwood is boiled along with about 10 pounds of cloth for about one hour, when the goods are taken out and the liquor of about half a pound of scalded sumac added and half a pound of the sulphate of iron. This is suffered to boil for a short time and the kettle skimmed of its froth, when the goods should be entered quickly and boiled for half an hour. This is called saddening—or darkening. This makes an excellent claret, and if boiled afterwards in a kettle with clear fustic liquor, a good and clear brown is the result.

If hypernic, or peachwood, is put upon the top of a purple, a good maroon is the result. This is done by using considerable alum in the purple dye, and boiling the goods afterwards in the peachwood liquor. Two pounds of peachwood to ten of goods answers very well, but there is such a difference in dye stuffs and in the qualities of goods, that no dyer can be conscious of integrity, who says dogmatically such and such a weight of dye stuffs will always dye such a shade certain—but by these receipts and a little practice, any person can dye them correctly.

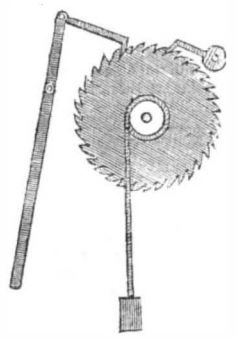
MECHANICAL MOVEMENTS.

Copying Drawings.



This engraving represents a plan of an arrangement for producing curved lines round the centre of the larger wheel. The curves may be varied by varying the proportions of the first and third wheel. The plan is to draw from a design, and the T squares are as guides for the draughtsman, so that by finding certain points by the freedom of working them through the slots in the lower rule in connection with the connecting cord to the left, ovals and circles, together with linear delineations, may be made with great rapidity to facilitate the copying process. Tracing paper, especially the very fine French kind, has now entirely superseded this instrument.

Vibrating Lever and Catch.



This is an arrangement for drawing a rope by means of a vibrating lever connected with a catch which gathers a tooth of the ratchet wheel at every vibration, thereby revolving the shaft on which the rope is coiled. This arrangement is the same as that of the capstan, with the exception of the one in the above cut being intermittent while the capstan is continued. The above arrangement is an exhibition of all mechanical arrangements for intermittent motion, making the cam as the general exception.

Curious Icelandic Custom.

The Icelanders have a curious custom, and a most efficient one of preventing horses from straying, which we believe is peculiar to that island. Two gentlemen, for instance, are riding together, without attendance, and wishing to alight for the purpose of visiting some object at a distance from the road, they tie the head of one horse to the tail of another, and the head of this to the tail of the former. In this state, it is utterly impossible that they can move on, either backwards or forwards, one pulling one way and the other another, and therefore, if disposed to move at all, it will be only in a circle, and even then, there must be an agreement to turn their heads the same way.

Soap Plant.

In California there grows a plant which is used by the people there for washing every description of clothing in cold running water. In using them as soap, the women cut off the roots from the bulbs, and rub them on the clothes, and a rich and strong lather is formed which cleanses most thoroughly. To propagate the plant, the bulbs are set in a rich moist soil, and grow most luxuriantly in the soft bottoms of valleys or bordering running streams.

To Petrify Wood, &c

Take equal quantities of gem-salt, rock-alum, white vinegar, chalk, and pebbles powder. Mix all these ingredients together; there will happen an ebulition. If, after it is over, you throw in this liquor any porous matter, and leave it there soaking for four or five days, they will positively turn into petrifactions.

An Oil to Prevent Pictures from Blackening.

It may serve also, to make cloth to carry in the pocket against wet weather.

Put nut or linseed oil into a phial, and set it in the sun to purify it When it has deposited its dregs at the bottom, decant it gently into another clean phial, and set it again in the sun as before. Continue so doing till it drops no more faces at all. And with that oil you make the above described compositions.

To Dye Wood Red.

Take chopped Brazil wood, and boil it well in water, strain it through a cloth. Then give your wood two or three coats, till it is the shade wanted. If wanted a deep red boil the wood in water impregnated with alumn and quick-lime. When the last coat is dry, burnish it with the burnisher, and then varnish.

To Gild on Calf and Sheep Skin.

Wet the leather with the white of eggs, when dry, rub it with your hand, and a little olive oil, then put the gold leaf, and apply the warm iron to it. Whatever the warm iron shall not have touched will go off by brushing

To Restore Wine that has become Sour or Sharp.

Fill a bag with leek-seed or of leaves or twisters of vine, and put either of them to infuse in the cask.

To Whiten Bones.

Put a handful of bran and quick-lime toge ther, in a new pipkin, with a sufficient quantity of water, and boil it. In this put the bones, and boil them also till perfectly freed from greasy particles.

Take a tub or a large kettle, fill it within six inches of the top with water, cover it with chaff or bran, and place it at night where the rats resort. By this method, thirty-six rats have been taken in one night.

THE SCIENTIFIC AMERICAN

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